EXPLORING TECHNOLOGY
(Technology and Engineering Education, Utah 2002-2003)

Technology Education – Levels: Grades 7-9 CIP Code: 210102

Units of Credit Semester (.5) each Prerequisite: None

Course Descriptions

Exploring Technology is comprehensive action-based educational course that introduce students to the technological systems of four of the following technology areas: medical technologies, agriculture/biotechnology technologies, energy-power technologies, information and communications technologies, transportation technologies, manufacturing technologies, and construction technologies. The curriculum is designed around exploration of these systems and their impacts on society. Students will also develop problem-solving skills, improving career awareness for the Student Educational Occupational Plan (SEOP) development, and relate technology to math and science. Emphasis is placed on broad exploration in cooperative and individualized activities rather than project and skill development.

All courses will cover standard 210102.01.

210102.01 Through activity-based education students will learn and use safe practices, learn basic design skills, and be introduced to related careers

- 210102.01.02 Students will learn and use basic safety rules for the tools, the equipment, and the facilities that will be used in the course.
- 210102.01.02 Students will learn and use measuring skills
- 210102.01.03 Students will learn basic design skills: i.e. sketching orthographic drawings, sketching pictorial drawings, creating a materials list.
- 210102.01.04 Students will explore related careers.

  - Example Activities:
    - Measuring
    - Safety Lecture and Test
    - Sketching

All courses will cover at least four of the remaining standards standard 210102.02 – standard 210102.08

210102.02 Through activity-based education students will explore medical technologies in our world.

- 210102.02.01 Students will explore the nature of medical technologies.
- 210102.02.02 Students will explore how medical technologies affect our society.
- 210102.02.03 Students will use basic design concepts in a medical technologies activity.
- 210102.02.04 Students will participate in activity based leaning activity to explore medical technologies.

  - Example Activities:
    - Basic First Aid
    - MSDS
    - Sterile verses nonsterile

210102.03 Through activity-based education students will explore agricultural and related biotechnologies technologies in our world.

210102.03.01 Students will explore the nature of agricultural and related biotechnologies.

210102.03.02 Students will explore how agricultural and related biotechnologies affect our society.

210102.03.03 Students will use basic design concepts in an agricultural and related biotechnologies activity.

210102.03.04 Students will participate in activity based leaning activity to explore agricultural and related biotechnologies.

- Example Activities:
  - Biotechnology
  - Environmental – Water Purification
  - GPS – GIS
  - Greenhouse
  - Hydroponics
  - Recycling
  - Sim Farm

210102.04 Through activity-based education students will explore energy and power technologies in our world.

210102.04.01 Students will explore the nature of energy and power technologies.

210102.04.02 Students will explore how energy and power technologies affect our society.

210102.04.03 Students will use basic design concepts in an energy and power technologies activity.

210102.04.04 Students will participate in activity based leaning activity to explore energy and power technologies.

- Example Activities:
  - Electronics / Electricity
  - Energy Conversion and Storage
  - Fluid Power
  - Internal Combustions Engines
  - Solar Power
  - Steam Power
  - Water Power
  - Wind Power

210102.05 Through activity-based education students will explore information and communication technologies in our world.

210102.05.01 Students will explore the nature of information and communication technologies.

210102.05.02 Students will explore how information and communication technologies affect our society.

210102.05.03 Students will use basic design concepts in an information and communication technologies activity.

210102.05.04 Students will participate in activity based leaning activity to explore information and communication technologies.

- Example Activities:
  - Animation

- Architecture Design
- CAD – Drafting
- Desk top Publishing
- Digital
  - Audio
  - Still Photography
  - Video
- Film Photography
- Printing
- Silk Screening
- Telecommunication
- Web design and exploration
- 3D Modeling

210102.06 Through activity-based education students will explore transportation technologies in our world.

210102.06.01 Students will explore the nature of transportation technologies.
210102.06.02 Students will explore how transportation technologies affect our society.
210102.06.03 Students will use basic design concepts in a transportation technologies activity.
210102.06.04 Students will participate in activity based leaning activity to explore transportation technologies.

- Example Activities:
  - Aviation – Aerospace
  - Boat Hull (Hydroplane or Hydrofoil)
  - CO^2 Cars
  - Hover Craft
  - Mouse Trap Cars
  - Restraint systems (Crash)
  - Rocketry
  - Wind tunnel

210102.07 Through activity-based education students will explore manufacturing technologies in our world.

210102.07.01 Students will explore the nature of manufacturing technologies.
210102.07.02 Students will explore how manufacturing technologies affect our society.
210102.07.03 Students will use basic design concepts in a manufacturing technologies activity.
210102.07.04 Students will participate in activity based leaning activity to explore manufacturing technologies.

- Example Activities:
  - Copyright and Patent?
  - CNC
  - Custom Production
  - Material Processes
  - Mass Production - Sheet metal Car – Quality Control
  - Robotics – work cell

210102.08 Through activity-based education students will explore construction technologies in our world.

210102.08.01 Students will explore the nature of construction technologies.
210102.08.02 Students will explore how construction technologies affect our society.
210102.08.03 Students will use basic design concepts in a construction technologies activity.
210102.08.04 Students will participate in activity based leaning activity to explore construction technologies.

- Example Activities:
  - Architectural Modeling
  - Basic Interior design
  - Bridge Design and Construction – Truss Design and Construction
  - Materials Testing -
  - Tower Design
  - Urban Planning

210102.09 Through activity-based education students will explore how math and science are used in Engineering and Engineering technologies in our world.

210102.0901 Students will explore the nature of engineering technologies.
210102.0902 Students will explore how engineering technologies affect our society.
210102.0903 Students will use basic design concepts in an engineering technologies activity.
210102.0904 Students will participate in activity based leaning activity to explore engineering technologies.

- Example Activities: (Note: all activities must have strong math and science applications)

  - 3D Modeling
  - Architectural Modeling
  - Aviation – Aerospace
  - Biotechnology
  - Boat Hull (Hydroplane or Hydrofoil)
  - Bridge Design and Construction
  - Energy Conversion and Storage
  - Environmental – Water Purification
  - Materials Testing
  - Mouse Trap Cars
  - Power systems
  - Restraint systems (Crash)
  - Rocketry
  - Tower Design
  - Truss Design and Construction
  - Wind tunnel
  - ???